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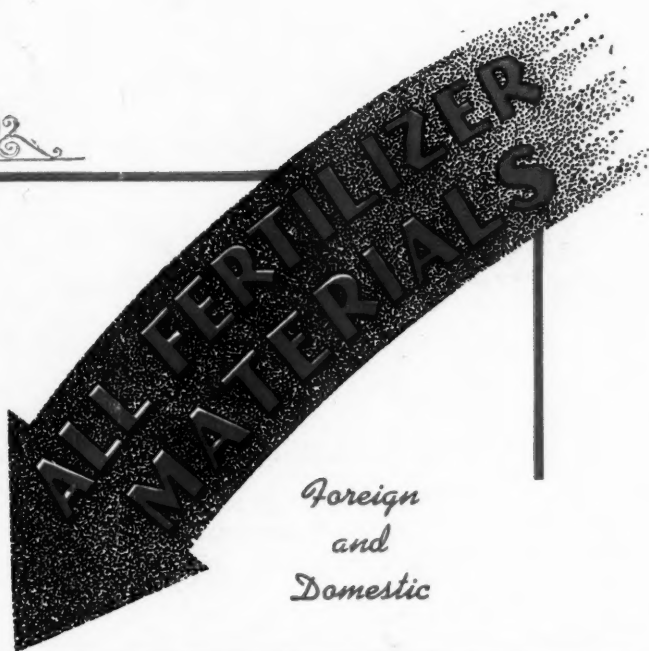


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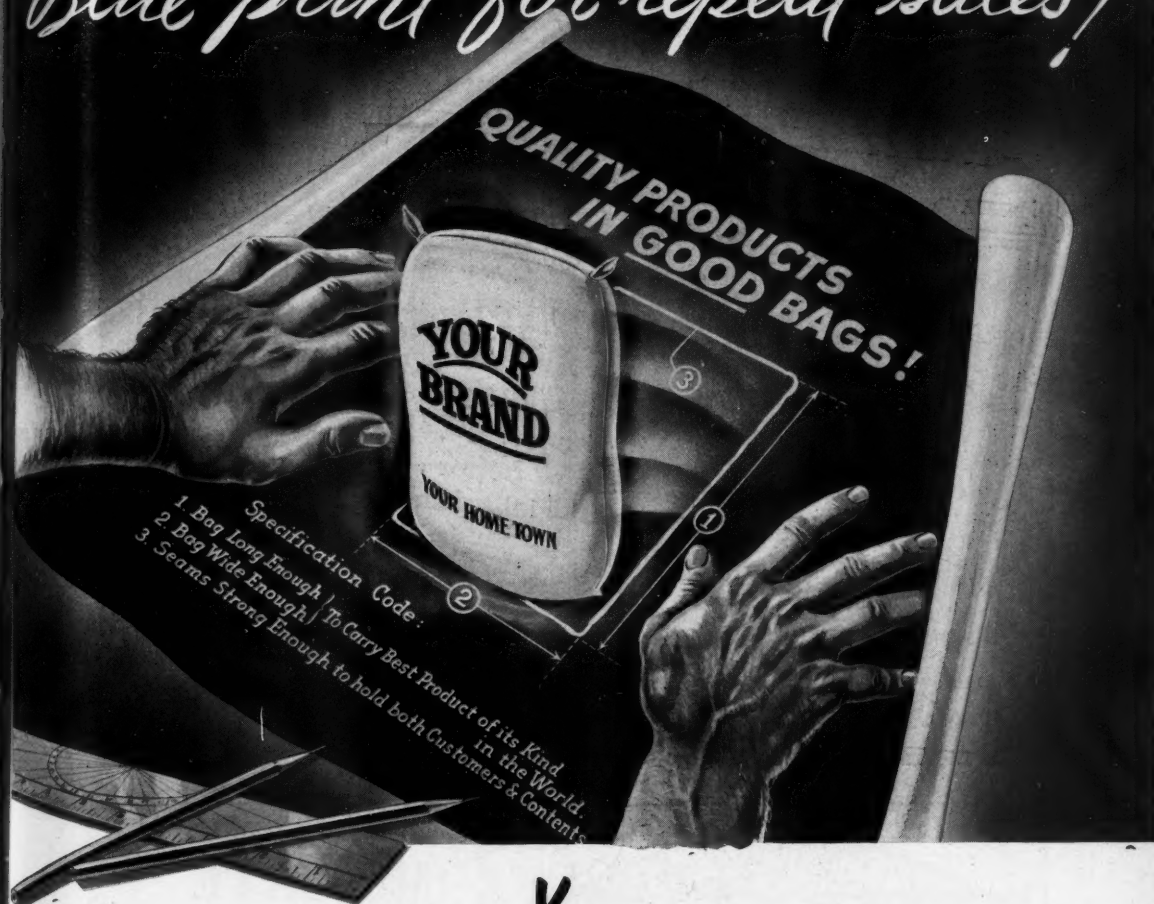
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See page 25



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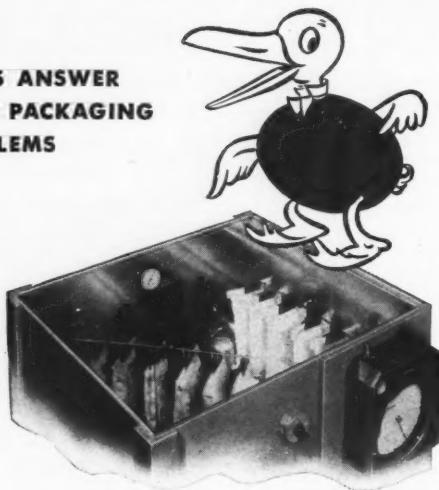
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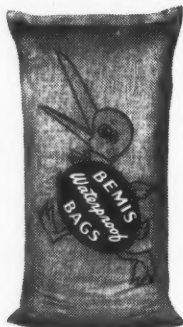
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AMERICAN FERTILIZER

"That man is a benefactor to his race who makes two blades of grass to grow where but one grew before."

Vol. 102

MARCH 10, 1945

No. 5

The Problem of the Peaks

BY D. P. HOPKINS, B.Sc., A.I.I.A., A.R.I.C.

THERE are two firms, A and B. A produces and distributes steadily 7,500 tons per annum. B produces 10,000 tons per annum, but distributes most of this in peak periods during the year. Which firm has the better business, other factors being relatively equal? Unless A has spent an inordinate amount of money on publicity or other methods to achieve its steadiness of trade, who can doubt that A wins every time?

Steady production, steady flow of goods away from the factory—these conditions must bring lowered costs of production, lower overheads, and in most cases lower costs for factory space as well. Nor are these obvious economic points necessarily the most important.

Businesses which run along placidly for a few months and then erupt volcanically into excessive activity for the next few months are inevitably "bad" employers—"bad" by fact if not by any intentions, "bad" by circumstances if not by will. The erratic demands of seasonal industries create excessive nerve strain for the individuals upon whom the various burdens fall, and this acts as an internal frictional force continually impeding efficiency and smothering development. The effect upon the ordinary laborer may be the effect of periodic unemployment; the effect upon the key worker or the executive worker is strain. If he is able, year in and year out, to weather the periodic storms of peaked demands, then he is either all too frequently

exhausted or he is "nerveless" and therefore of so phlegmatic a temperament that he is unlikely to want to improve anything of any kind.

Initiative, enterprise, the flair for doing better or being better—call it what you will—this vital personality factor in industry is usually associated with some quota of nervous temperament, and it is not so likely to flourish in factory B as in factory A. Boneless and nerveless wonders who toss like corks in any stormy sea certainly may never sink, but they rarely make journeys of any importance.

Application to the Fertilizer Industry

Now in these opening paragraphs the word "fertilizer" has not been mentioned, but I doubt if I should become noticeably richer if a pound note came from every reader who had not thought of the fertilizer industry in connection with these points. This is perhaps an easy enough speculation since most of these pages are in any case devoted to fertilizers; but had this article appeared in a more general journal, the point would still be true for readers with personal knowledge of the NPK industry.

In assessing the importance of this problem in the post-war period, it would be dangerous to make estimates in terms of the fertilizer industry alone. Economists may be devoting a great deal of thought to the proposition of full employment, but for some years after the war it is probably necessity rather than any kind of leadership of ideas that will provide jobs for all.

An intelligent survey of the state of the various countries after the war, a quite moderate estimate of the demand for consumer-goods of all kinds with or without priorities—

*Reprinted from *The Fertilizer Journal*, London, England. While the basic conditions of fertilizer manufacture and distribution differ somewhat in England from those in the United States, the author discusses post-war problems which will be common to both countries.

these facts alone should lead to a period not merely of full or balanced employment but of labor scarcity. The effect of this general condition upon any industry that tries to solve the problem of seasonal demand by seasonal employment is not going to be favorable. Better grades of labor will gravitate toward regular jobs. The only remedy would be high "casual" wages, high enough to counteract the seasonal unemployment.

Another factor will be the attitude of the consumer. Farmers are likely to be analyzing their costs rather more keenly than in war-time. This is inevitable since it seems that plenty of shipping will be available at the end of the war for transatlantic food movements. The home food-producer is bound to face some measure of price competition. Even if this ancient problem is settled politically and bargains are struck, such bargains will be based to some extent upon this price competition.

The Farmer's Problem

Whether there is more control than some would like, or less than others would like, this tendency must operate. A rise rather than a fall in farming output may be called for after the war, but market prices will be expected to be less. The problem facing the farmer is to combine high production with low costs, a problem that might seem easy enough to the sausage-machine type of industrialist but which is much less easy for those whose basic machine is the soil.

The post-war need for more fertilizers has been stressed in a 1945 statement by the Minister of Agriculture. If farmers are in any measure controlled in regard to the prices of their products and if they are told to use more fertilizers in order to produce bigger crops, they are in turn bound to expect that goods they have to pay for are also kept below certain price levels. Therefore, the fertilizer manufacturer will face much the same problem—higher output and lower costs, or at any rate, lowest possible costs.

But seasonal demand—the output graph of peaks and troughs—cannot lead to lowest possible costs. Mass production or semi-mass production is based initially upon flattening out erratic conditions. The awkward fact is that not even six years of war have solved the fertilizer industry's problem of peak demand periods. It may be better than it was if only because many farmers have learned from sheer hard experience that fertilizers in the barn are better than fertilizers that come too late. But it would be nonsense to pretend that this storing in

advance is popular with farmers; rather, it is something they have come to "put up with" as a necessary evil of the war, something they are most unlikely to go on tolerating in peace-time.

Peak Period for Fertilizers

Many manufacturers have been able to expand their war-time production in face of all other adverse factors because in months that would have been sterile in peace-time they have been able to distribute useful tonnages. They cannot count upon this factor once the war is over; indeed, they should reckon upon an almost violent reaction in the opposite direction. "Now," many farmers will say, "I'm going to take my fertilizers when I want them!" Even if, as is probable, fertilizers are still in short supply, farmers are likely to dig their toes in on this point; if it leads to distribution bottlenecks in the peak period, they will have to re-learn the lessons they have learned in the war. It is a psychological issue more than a logical issue.

The problem as a peace-time difficulty is not unique. In 1943 Stalin referred to it in a speech at the 17th Congress of the U.S.S.R. Communist Party:

"One of the most effective means of increasing the yields of industrial crops is to supply them with fertilizers. What is being done in this sphere? Very little as yet. Fertilizers are available, but organizations of the People's Commissariat of Agriculture fail to get them . . ."

One can read all the problems of production managers in fertilizer factories between these lines.

Agriculture requires fertilizers. The fertilizer industry exists to supply what is needed, and to supply at a reasonable price level. Moreover, late deliveries are not merely an annoyance to the user; they mean wrongly timed applications which must produce inferior results. The solution of the problem of peak demand is perhaps the most pressing need of the industry, and it will remain so until it is solved.

These are two lines of solution:

- (1) Entirely within the fertilizer industry.
- (2) By co-operation between producer and consumer.

Neither is exclusive of the other. To consider each separately is not to assume that both should not be aimed at or that either could succeed alone.

Solution Within the Fertilizer Industry (a) Seasonal Production

This is probably the most inefficient method of coping with the problem. It in-

volves seasonal employment, the maintenance of high production capacity and associated overheads during slack periods. It can lead only to higher costs of production and to labor difficulties, possibly in future in terms of quantity as well as quality of labor. As has been pointed out, it does not lead to favorable conditions for individual initiative—it is the method of rush and tumble, the bull's venture into the china shop.

(b) Storage Within the Industry and Its Ramifications

This method is the obvious alternative to the one above. The two graphs of factory activity, output of finished product and delivery of product are in sharp contrast. The former is kept fairly level, the latter shows extreme peaks and troughs. To some extent this system has operated during the war, and no doubt as a partial solution it has always operated. During the war the permit system has helped manufacturers to anticipate their orders more accurately; certainly some measure of confidence in regard to future orders must be present, for no firm can store up quantities of goods which may or may not be needed in due course.

Economically this method depends upon the existence of suitable and not too costly storage. Technically it depends upon the storability of the *lagged* fertilizer—for it is only a very incomplete solution to store the fertilizer in bulk and leave the bagging operation until the period of peak demand.

Dealing with the economic angle of space first, it must be realized that a large number of factories are situated near points of raw material intake, ports, railheads, etc. Space in such localities must be paid for in competition with other industries who also desire convenient transport arrangements, industries with no seasonal problem to face. It is obviously cheaper to make and bag fertilizers in well-placed factories, but to store them in agricultural areas where or near where the fertilizers will ultimately be required. For this reason the phrase "and its ramifications" came into the sub-title above; and it is the country merchant who comes into the picture as a vital member of the industry.

There is often a lot of criticism of the function of the so-called middleman, especially in agricultural commerce. Why should the middleman who produces nothing directly stand between maker and consumer and take a profit? Of course, there are several answers to this, and the question is not raised here in a critical sense. But how much more power-

ful is the total answer if the merchant takes into his store during slack months most of the fertilizers that his customers will need in the peak periods; how much less powerful if the merchant merely acts as a local salesman or telephone and handles the goods only as and when his customers are themselves prepared to handle them! One proviso should be added: the merchant's storage conditions must be suitable and not cause deterioration of product.

From the technical angle, the bagged fertilizer must store well under reasonable conditions, and this responsibility lies wholly upon the manufacturer. One of the farmer's biggest objections to storing his fertilizers himself is his fear (and sometimes experience) that they "set hard." It will be no service to him if the same thing takes place when other arrangements for storage are made on his behalf.

Here, granulation would seem to press its suit, particularly for (1) straight inorganics, and (2) high-analysis compounds. Friability will, however, be maintained during long storage with compound fertilizers that are well conditioned and not so high in NPK content that a useful content of bulky organic matter is precluded. There is no doubt that bagged, granulated fertilizers can be stacked higher than bagged, non-granulated fertilizers except where this "opening" or "buffering" organic content is present.

It is no solution to produce fertilizers which will only store well under conditions that are too precise to be easily obtained in general practice. The utmost attention must be paid to this technical question of storability in the post-war period.

(c) Peak-Flattening for Sales Policy

This method lies wholly with sales policy, and many will dismiss it as impracticable. But, if it offers no general solution, it may nevertheless be most attractive in specific cases, especially for relatively small producers who are prepared to specialize. Just as social security plans depend upon a good measure of full employment, so this kind of planned selling depends upon a full demand for fertilizers, that is to say, upon the existence of a seller's market that allows the seller to discriminate. But to a large extent this assumption underlies the whole of this article, since there is not much of a production problem, seasonal or otherwise, if the demand for fertilizers is not high.

I do not suggest that this method of strategic selling can be pressed so far that it eliminates peak periods altogether, but it can

(Continued on page 24)

Fertilizer Material Briefs

Ammoniates

Sulphate of ammonia production in February was low but inventories allowed requests for February shipment on 100 per cent basis under allocation procedures.

Nitrogen solutions were in greater supply in February than was anticipated and permitted approvals of 30 per cent increase in allotments than was possible for January.

Nitrate of soda had accumulated in relatively large quantities at Gulf ports, making readjustments necessary in the allocation of this material and also of Cal-nitro, between the several producers or importers.

Sodium cyanide fell short by 35 per cent of requests for February. Military requests have exceeded supplies and production has been seriously curtailed.

Ammonium nitrate from domestic sources for agricultural use virtually ended with February, but Canadian supplies are still available. Domestic supplies for the first six months of 1944-45 were, however, greater than had been anticipated.

Organic ammoniates continue far short of agricultural requirements. Oilseed meals such as cottonseed meal, peanut meal and soybean meal, largely allotted to the feed trade, are virtually unobtainable for fertilizer use. Likewise tankage and blood of packing houses are absorbed by the feed trade. Considerable stock of fish meal is reported held for the feed trade. Acidulated fish scrap is reported extremely scarce. Castor bean pomace imports have increased but no improvement in the general supply situation is reported. Nitrogenous materials from sewerage, recovered and treated materials, and hoof meal are all reported far behind orders.

Superphosphate

Production is reported lagging. Labor shortage is reported as the first limiting factor. Scarcity of tank cars for sulphuric, only slightly improved, is a retarding factor. Since it takes six weeks to properly cure the material, the time factor is entering into production for use this season.

Bone Meal

Bone meal is held for the feed trade for which an improved demand is reported. The U. S. Department of Agriculture delivered 11,200 tons of bone meal against lend-lease during January.

Potash

Production of 900,000 tons of potassium oxide in this country is anticipated for this year—a substantial increase over the previous year—yet it is claimed that more for agriculture could have been used if made available. Production of sulphate of potash, particularly for tobacco growers, will fall short of demand while the demand for muriate of potash will be fairly well covered.

Textile Bag Status

No change in the present practice of distributing cotton goods for making textile bags should be made by the War Production Board until a detailed study of the problem is made and filed, according to recommendations of the newly formed Textile Bag Manufacturers Industry Advisory Committee.

Increased demand for bags and present limitations of the supply of cloth from which to make bags for packaging foods, may require a change in procedure, WPB announces.

Defluorinated Phosphate Demand

Expansion of the demand for defluorinated phosphate is reported. The feed trade is using about 2 per cent of the material in feed mixtures. The supply, it is reported, is keeping pace with the demand.

January Sulphate of Ammonia

Production of sulphate of ammonia during January decreased about 2.5 per cent from the December figures, according to the U. S. Bureau of Mines. Sales, however, increased 6.5 per cent and consequently stocks on hand at the end of the month had been lowered to 60,381 tons, a drop of 12.5 per cent. The figures for ammonia liquor follow about the same trend.

	Sulphate of Ammonia Tons	Ammonia Liquor Tons NH ₃
Production		
January, 1945.....	67,331	2,513
December, 1944.....	69,040	2,567
January, 1944.....	67,875	2,743
Shipments		
January, 1945.....	75,981	2,106
December, 1944.....	71,234	2,228
January, 1944.....	71,010	2,679
Stocks on Hand		
January 31, 1945.....	60,381	1,080
December 31, 1944.....	69,013	890
January 31, 1944.....	25,045	865
December 31, 1943.....	28,397	991

WFA Announces Plan for Post-War Use of Fertilizer and Lime

GREATLY expanded use of fertilizer and lime after the war will be essential to human nutrition, soil conservation and balanced farming, and therefore should be encouraged as a matter of national policy, a special committee has reported to the Secretary of Agriculture, Claude R. Wickard. The committee, composed of Department of Agriculture and War Food Administration officers, recommended increased phosphate production capacity, conversion of Government synthetic nitrogen plants for the production of fertilizers, and large importations of potash to meet increased demands.

The committee also pointed out that, under favorable conditions, greater use of fertilizer and lime will be profitable to farmers. Recent studies indicate that, if postwar conditions are favorable, farmers can profitably use twice as much fertilizer and three times as much lime as in 1944. Compared with prewar consumption, the increases would be much greater.

The report emphasizes that the proper and adequate use of fertilizer and liming materials is essential to the development of farming systems that maintain soils and result in a balanced farm output. Under such improved farming systems, however, cash crops would receive a smaller proportion of the commercial plant food than at present; soil conserving and soil building crops would receive a greater percentage.

In addition to helping develop a permanent agriculture, the committee pointed out, adequate and proper use of fertilizer and liming materials improves the nutritional value of the food supply.

National policy, in the committee's view, should aim both to increase the use and insure a continuous adequate supply of fertilizers and lime.

Recommendations for carrying out those objectives include:

1. Develop a broad educational program in cooperation with various public and private agencies to (a) encourage use of high-analysis fertilizers, (b) continue through State action a reasonable limitation and uniformity of fertilizer grades, (c) encourage coordinated use of lime and fertilizer, (d)

test and demonstrate the place of lime and fertilizer in desirable farming systems under various conditions.

2. Substantially increase Federal aid programs for promoting the use of fertilizers and liming materials for conserving soil resources, with distribution of materials primarily through commercial channels.

3. Expand research on (a) use of these materials to achieve balanced production and soil conservation and (b) new products and processes for fertilizer production at low cost.

4. Explore possibilities of reducing shipping rates and otherwise keeping costs low.

5. Encourage development of additional sources of liming materials as near areas of need as possible; encouraged other means of keeping distribution costs low.

6. As recommended previously by another committee, convert Government synthetic ammonia plants with a rated capacity of 300,000 tons (N) for the production of nitrogen fertilizers and ammonia derivatives as soon as war conditions permit. These plants should be sold or leased to private industry, including farmer cooperatives, under arrangements safeguarding the public interest. Otherwise, the plants should be operated as a public enterprise. All other Government nitrogen plants should be maintained in stand-by condition. Imports of nitrogen fertilizers should continue to be admitted free of duty. Duties should be removed from anhydrous ammonia when it is imported for use in fertilizer.

7. Encourage the construction of new phosphate plants needed to supply areas not economically or adequately supplied by existing plants or in which substantial increase in the use of phosphates is desirable. Government-owned sulphuric acid plants should be sold or leased to private industry for postwar fertilizer production. Private industry, including farm cooperatives, should be encouraged (with Government support if necessary) to expand production of phosphates to meet all fertilizer demands.

8. Explore public land for new domestic sources of water-soluble potash. Known resources of potash in the United States are adequate for less than 50 years if used at rates

(Continued on page 30)

IT MAY BE

By SAMUEL L. VEITCH

Excess Profits Tax

It may be, business will get some consideration on the Excess Profits Tax sometime this year. Maybe raised to \$25,000.00 instead of the present \$10,000.00, designed to help the small business man. But, remember, this cloud with a silver lining may turn out to be just a mirage. But, the following does exist at present and shows what a slim chance a concern has in the Tax Court.

With the passage of the first Excess Profits Tax came country-wide protest over its excessively high rates and its inadequate provisions for dealing with individual cases of abnormality. The rates of tax contained in the 1940 and 1941 acts, high as they appeared at that time, ranging from 25 per cent to 40 per cent in 1940 and from 35 per cent to 50 per cent in 1941, were later in 1942 increased to a flat rate of 90 per cent, and further adjusted in 1943 to 95 per cent. These confiscatory rates applied to all income in excess of certain credits and statutory exemptions. Specifically, every corporation was first allowed an exemption of not over \$5,000.00 per annum, later increased, effective for 1944, to \$10,000.00. A credit was further allowed to be computed as the greater of either 95 per cent of average earnings during the years 1936 through 1939, designated as the "base period," or a graduated percentage of invested capital, commencing with 8 per cent on the first \$5,000,000 of such capital, 6 per cent on the next \$5,000,000 and 5 per cent of capital in excess.

Insufficient Capital

It was immediately apparent that many corporations, for diverse reasons, had an insufficient amount of invested capital, or an inadequate base period average of earnings, to provide much credit and that the Excess Tax would consume what, under usual conditions, would be considered as a fair and normal profit. Since the intent and purpose of the Act purported to tax only those profits which were above "normal" or, to identify them more particularly, those profits resulting from the war, a justifiable clamor for relief arose. In response came Section

722, now slowly evolving as a mirage. Not until two years had elapsed, and not until claims filed in 1942 commenced to be audited, did the Bureau of Internal Revenue release its bulletin of information on this Section, on November 2, 1944, preceded by a foreword typical of that which followed, in a pamphlet approximating 200 pages couched in tortuous and complicated language compared with which all prior literary efforts of the Treasury Department pale into the feeble writings of a grammar school neophyte. The Bureau presents an extraordinary document setting forth the principles it is following in the administration of Section 722, conceding that the Bulletin is intended only as a guide to a better understanding. The clash between the Bureau and the taxpayer, now inevitable, will place on the Tax Court the onus of interpreting and defining Congressional intent.

When Section 722 was first presented to the taxpayer as a cure-all, a flood of claims was unloosed. Some were filed at the insistence of the taxpayer who saw in one or more paragraphs of the Section language which appeared to apply, many others were filed merely as protective measures to guard against later more favorable interpretation, and a very few, compared with the total, were the product of specific application of the provisions to the existing facts. The record indicates that, out of many thousands of applications filed, involving approximately \$5,000,000,000 of taxes, the allowed claims to date are few in number and insignificant in amount. The Bureau of Internal Revenue is required to annually publish lists of the cases in which relief has been allowed. The lists for the fiscal years ended June 30, 1942, 1943 and 1944, are now public documents. A tabulation of the data shows that some 222 corporations have received relief under Section 722. These allowed claims include 89 relating to returns filed for the taxable year 1940, 145 allowed for 1941, 103 allowed for 1942 and 14 allowed for 1943 (including more than one year for certain taxpayers). Moreover, the majority of these were small claims, about half involving individual increases in Excess Profits credits of less than \$10,000, and only 6 showing individual increases in

credits of \$100,000. No increase in credits of in excess of \$300,000 was reported.

It is no secret that the Bureau of Internal Revenue is disallowing the great majority of the cases which it has thus far reviewed. The data on allowed cases is eloquent of that, and since the Tax Court has not yet ruled on any relief case appeal the principles it will lay down are yet to be ascertained. Most of the claims filed are "skeleton" claims, which merely state the grounds for eligibility but do not provide a complete computation and reconstruction of base period income proposed to be substituted for the base period income experienced. Taxpayers now face the decision of either perfecting or abandoning their claims.

On Both Sides

In September, 1944, the Bureau of Internal Revenue released a general determination (Mim. 5747) that claims based on a profits cycle different from that of business in general would not be considered as sound claims in some 34 listed industries. Paradoxically, this list includes industries represented in the reported allowed cases. For example, the following industries appear in both lists: Metal mining, soft drink manufacturing, paper, pulp and products manufacturing, petroleum refining, motor vehicles and accessories manufacturing, radio broadcasting, etc. Confusing as this may seem, the fact is that several bases for relief exist and a claim which would be lost on the "cycle" theory might be successful on a "change in the character of the business" basis.

In short, therefore, the decision to carry on the fight once your relief claim receives its first set-back, as it inevitably will at the hands of the Internal Revenue Agent, is one which deserves your very serious attention. Corporation executives should read the Treasury Bulletin with care and a withdrawal is recommended if the claim does not weather the Bulletin's attack. Section 722 will be found to offer relief to very few.

Federal Cotton Crop Insurance

The Federal Crop Insurance Corporation is offering insurance on cotton up to 75 per cent of the average acre yield. To qualify there must be a minimum of 50 applications from a county, or $\frac{1}{3}$ of the cotton producers, whichever is smaller.

Applications must be completed before the earliest planting date or the date set by the Corporation for the area.

The main features of the insurance program are: (1) All cotton producers—share croppers, tenants and owners—are eligible to insure their 1945 cotton crops. (2) Producers desiring less coverage than 75 per cent may insure at 50 per cent of the average yield. (3) Maximum insured production will vary according to the stage of the crops' development. (4) Insurance covers loss due to drouth, flood, hail, wind, frost, lightning, fire, excessive rain, snow, wildlife, hurricane, tornado, insect infestation, plant disease or any other unavoidable cause as may be determined by the Board of Directors of the Corporation. (5) Producers may also insure their cotton seed against loss. (6) Farmers may use any indemnity payable under the insurance contract as collateral security for a loan for current crop production or for any other financial obligation. (7) Adjustments and settlements of crop losses will be made by representatives of the Federal Crop Insurance Corporation.

Applications for federal crop insurance can be made through the local office of the AAA.

Sweet Potatoes as a Cotton Acreage Substitute

The increasing demand for the sweet potato is leading agricultural workers in the South to advise farmers to turn surplus cotton acreage to growing sweet potatoes. Louisiana Agricultural Extension Service announces a meeting of sweet potato growers at St. Francisville, March 14th, when Dr. Julian C. Miller, head of research in horticulture at the Louisiana Agricultural Experiment Station will be honored with a plaque for his work in sweet potato breeding and a contest in naming his newly developed potato will be concluded.

Harry Daniel, president of the sweet potato growers association, says, "The sweet potato is fast becoming one of Louisiana's major crops. This twelve-million dollar crop is being produced mainly in fifteen parishes of Louisiana." He calls attention to the fact that the sweet potato can be used as a fresh vegetable for food and for the manufacture of starch, feed and alcohol, and that the crop can be grown on all types of soil.

The sweet potato, as a source of carbohydrates in feed, has been found to compare favorably with corn but has the advantage in yielding more feed units per acre.

THE AMERICAN FERTILIZER

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Extending Manpower

The fertilizer industry is realizing more than ever the necessity of getting maximum output per unit of manpower. Labor is scarce while the demand for products is unequaled. Obviously the only way out is to get more from labor, not more hours of service so much as more per man-hour.

This desirable end is to be attained not by speeding up labor but by placing in the hands of labor equipment that will multiply his output. Efficient productive machinery is not only the key to more per man-hour, but the solution of the problem of cost reduction.

When the war is over, let it be granted, labor will be more abundant and cost less. But unless the fertilizer manufacturer is prepared to get from his labor through modern efficient equipment the highest possible output, the cost will be higher than necessary and higher than the manufacturer can stand in competition with the highly mechanized producer.

Cutting the cost of production through mechanization so as to extend the man hour output is, in fact, going to account for success in the future more than ever before. Failure to mechanize will account for failures as never before.

Whether cheap labor is a thing of the past or not, cheap production is essential and obtainable only by making labor more highly productive. This can only be done, we repeat, by implementing labor with efficient equipment. In fact, in this way alone can labor hope to produce so as to justify relatively high wages.

Mechanization of every step in production is, therefore, of interest to the producing concern, its stockholders, its operating personnel and the consumer. Efficiency always pays.

TVA Restrictions Sought

Senator Kenneth McKellar of Tennessee has introduced a bill (S 464) which would discontinue the revolving fund of the Tennessee Valley Authority by requiring that all its proceeds be turned into the general funds of the Treasury and not spent until appropriated by Congress. In this way Congress would have something to say as to how the proceeds of TVA are expended.

Obituary

Harold R. Smalley

Harold Ryland Smalley, nationally known soil scientist, and director of Soil Improvement Work and member of the staff of The National Fertilizer Association for over 25 years, died February 27th at Doctor's Hospital, Washington, D. C., following four weeks' illness. His death came as a great shock to his family and friends, as it was hoped his condition was slightly improved before a third operation was deemed necessary and from which he never rallied. The funeral was held at Hines Funeral Home, Washington, D. C., on March 1st, with interment in Alexandria, Indiana, his boyhood home.

He was born in Summitville, Indiana, and attended Purdue University where he received the B.S. and M.S. degrees. He served there as research chemist for 2 years and was a county agricultural agent in Steuben and Allen Counties for 5 years, with an interval of 1 year with the Office of Farm Management, United States Department of Agriculture. In 1920 he became agronomist for the old National Fertilizer Association, being located first at Kansas City, later at Chicago, and then at Washington. With the formation of the present Association in 1925 he was appointed director of the Northern Division of the Soil Improvement Committee. In 1929 when the Northern and Southern Divisions were combined, he became chief agronomist and director of all Soil Improvement Work.

He wrote many articles and numerous pamphlets on soils and fertilizers, took an active leadership in developing methods of applying fertilizers more efficiently and urging better soil practices, participated in industry and agricultural meetings in every State, and made three agricultural trips to Europe. He served as secretary of the Committee on Fertilizers of the American Society of Agronomy, the National Joint Committee on Fertilizer Application, the Plant Food Research Committee, the National Joint Committee on Nitrogen Utilization, and others. He was an honorary Fellow of the American Society of Agronomy, was a member of the American Farm Economic Association, Sigma Xi, Alpha Gamma Rho, Sons of the American Revolution, Mayflower Society, Masons, and National Grange. He is survived by his wife, four children and one grandchild, and by three sisters.

Harold Smalley was recognized as an outstanding authority in the field of applied soil science, and his opinions as an agronomist were held in the highest respect by his fellow scientists and associates. He had visited the agricultural experiment station of practically every State in the Union many times; had familiarized himself with their general agronomic problems, and was a welcome conferee with the officials of each of them.

"His 25 years of efficient and devoted service to the fertilizer industry and to the Nation's agriculture can never be equaled. He will be sorely missed by the many who knew him well," stated Charles J. Brand, Executive Secretary and Treasurer, in commenting on the death of his co-worker of 20 years.

The honorary pall bearers were: F. W. Parker, K. D. Jacobs, W. F. Watkins, J. H. Stallings, U. S. Department of Agriculture; J. W. Turrentine, American Potash Institute; C. G. Woodbury, Purdue University; Robert H. Engle, R. H. Lush, The National Fertilizer Association Staff; L. G. Porter, War Food Administration; Dale C. Kieffer, War Production Board; Cedric G. Gran, Office of Price Administration; W. B. McCloskey, A. T. Dukes, T. R. Moyer, J. A. Woods, Maurice H. Lockwood, the fertilizer industry; Maurice H. Thatcher, Mayflower Society; Richard Bradfield, Cornell University; L. D. Bayer, North Carolina Experiment Station; and Don Lewis, Ohio Experiment Station.

Site for New Calco Plant

The American Cyanamid Company, New York, announces the purchase of a site for a new plant to be used when erected by its Calco Chemical Division. The site consists of 800 acres located along the Ohio River near St. Marys, West Virginia, and is to be served by the Baltimore and Ohio Railroad.

The principal plant of the Calco Chemical Division is now located at Bound Brook, New Jersey. The new plant, it is announced, is to be an important post-war development of the company.

The principal units of the American Cyanamid Company are the Calco Chemical Division, the American Cyanamid and Chemical Corporation, North American Cyanamid Ltd., and Davis and Geck, Inc.

Some agricultural economists are predicting fewer farms after the war with more mechanization and doubling of the use of fertilizers to gain greater yields per acre.

Steel Drum Needs Face Difficulties

The most critical need is for small drums for which an increasing demand is being made by Army, Navy and Air Forces. WPB reports the steel situation is becoming more acute and there is no room on steel mill schedules for any more orders for the second quarter and that third quarter schedules are rapidly filling up.

February Tax Tag Sales

Fertilizer tax tag sales in the 17 reporting States in February were 6 per cent smaller than in February, 1944. North Carolina was the only one of the 12 Southern States to report larger sales than last year; increases

were reported by 4 of the 5 Midwestern States.

Total sales in the first two months of the year were slightly larger than in the corresponding period of 1944 and 1943. Comparatively small declines from last year were reported by 9 of the 17 States.

Sales in the first 8 months of the fiscal year, from July through February, were 1.5 per cent larger this year than last and were 25.2 per cent larger than two years ago. Comparative figures for this period are shown below.

	July Through February	1944-1945 Tons	1943-1944 Tons	1942-1943 Tons
Total South.....		4,102,247	4,150,373	3,407,821
Total Midwest.....		799,304	676,921	507,741
Grand Total.....		4,901,551	4,827,294	3,915,562

FERTILIZER TAX TAG SALES

STATE	FEBRUARY				JANUARY-FEBRUARY		
	1945 Tons	1944 Tons	1943 Tons	% of 1944	1945 Tons	1944 Tons	1943 Tons
Virginia	69,379	75,825	64,422	103	147,056	142,399	124,694
North Carolina	267,507	241,507	298,931	107	529,922	497,570	518,383
South Carolina	147,430	160,995	208,889	98	309,048	315,353	363,210
Georgia	208,810	210,540	248,370	95	386,705	408,558	408,213
Florida	80,472	83,820	75,196	103	203,392	196,842	177,470
Alabama	147,250	154,050	195,700	99	307,000	307,650	316,750
Mississippi	59,852	81,395	77,643	86	141,917	165,395	171,807
Tennessee	44,791	46,397	42,613	98	66,375	67,685	56,351
Arkansas	11,200	35,800	40,090	88	48,400	55,158	72,790
Louisiana	21,550	33,550	39,413	96	62,811	65,150	68,813
Texas	19,770	41,627	33,480	108	64,380	59,527	52,705
Oklahoma	4,020	4,109	5,350	98	8,062	8,259	9,450
Total South	1,082,031	1,169,615	1,330,097	99	2,275,068	2,289,546	2,340,636
Indiana	39,506	65,266	72,500	92	83,056	89,955	122,350
Illinois	38,100	16,850	15,429	131	59,075	44,950	34,180
Kentucky	37,263	34,988	24,185	137	88,393	64,376	32,415
Missouri	20,481	9,984	25,793	101	47,509	46,946	28,852
Kansas	4,900	4,491	1,253	133	12,205	9,171	1,303
Total Midwest	140,250	131,579	139,160	114	290,238	255,398	219,100
Grand Total	1,222,281	1,301,194	1,469,257	101	2,565,306	2,544,944	2,559,736

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FERTILIZER MATERIALS MARKET

NEW YORK

Sulphate of Ammonia and Nitrate of Soda Continue in Adequate Supply but No Carry-over Expected at End of Season. Superphosphate Shortage Shows No Signs of Improvement. Except for Sulphate, Potash Supplies Seem Adequate.

Exclusive Correspondence to "The American Fertilizer"

NEW YORK, March 8, 1945.

Sulphate of Ammonia

The demand continues heavy and it looks as if the end of the fertilizer season will find no supplies on hand. Present allocations are taking the entire current production. Some transportation difficulties have been encountered in getting material to the fertilizer mixers.

Nitrate of Soda

Imports of Chilean nitrate continue about as per schedule and it is probable that the entire quota of 850,000 tons will be available for the current crop season. Some material is being landed at Pacific Coast ports and shipped east by rail. Demand continues active in spite of the large quantities already taken by farmers for use later in the spring.

Organics

The feed manufacturers are taking all supplies of organics as fast as they can be produced and demand is running far ahead of output. Consequently, ceiling prices prevail throughout the market.

Superphosphate

Shortages of superphosphate are reported from many areas. With the prevailing uncertainty in the labor situation, it is impossible to predict future production figures. It seems likely, however, that total production for the present fertilizer year will fall below the figures for 1943-44. There have been signs of increasing demand from farmers for direct application.

Phosphate Rock

This material is one of the few that are in adequate supply. Florida miners have been able to keep acidulators supplied with all the material they can handle. It has even been possible for acidulators to build up reserve

supplies to take care of delays in transportation delivery of current supplies.

Potash

Supplies of muriate of potash continue to move to consuming channels in adequate amounts, in spite of an occasional shortage of box cars. The use of potash by the chemical industries has greatly increased during the war years. The supply of sulphate of potash continues short and the production of tobacco fertilizer is thereby seriously affected.

CHARLESTON

Box Car Shortage Hampers Fertilizer Material Delivery. Organic Situation Still Tight.

Exclusive Correspondence to "The American Fertilizer"

CHARLESTON, March 7, 1945.

A serious box car shortage has developed in the East and Middlewest, which is preventing producers of fertilizer materials making prompt shipment on orders.

Organics.—The tight supply position continues on all organics with no nitrogenous being offered.

Dried Blood.—Last sales at \$5.53 (\$6.72 per unit N) f. o. b. New York or Chicago. None is being offered for March.

Sulphate of Ammonia.—All available supplies through June have been booked but there is considerable question how much will be actually shipped in the next thirty days on account of shortage of box cars.

Nitrate of Soda.—Prices effective for domestic and Chilean have been continued through March.

Farmers are being asked to help prevent a shortage of textile bags for farm products and farm supplies by conserving and re-using as many bags as possible.

Fertilizer Materials



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CHICAGO

Fertilizer Organics in Urgent Demand with No Supplies Available. Feed Material Market Firm.

Exclusive Correspondence to "The American Fertilizer"

CHICAGO, March 5, 1945.

The tight situation in organic supplies is becoming rather serious in some sections. Urgent requests for nearby shipment of even small quantities have been regretfully declined, and without sellers being in position to promise deferred deliveries.

Export of considerable meat meal from Southern producing points has placed that article firm at ceiling prices. All feeding materials are now well held at ceilings.

Ceiling prices are:

High grade ground fertilizer tankage, \$3.85 to \$4.00 (\$4.68 to \$4.86 per unit N) and 10 cents; standard grades crushed feeding tankage, \$5.53 per unit ammonia (\$6.72 per unit N); blood, \$5.53 (\$6.72 per unit N); dry rendered tankage, \$1.25 per unit of protein, f. o. b. producing points.

Fertilizer Tests in Texas

The Fifty-Fifth and Fifty-Sixth Annual Reports of the Texas Agricultural Experiment Station, issued in one publication, include reports on fertilizer tests made under the varied soils and climatic conditions of the State's vast area. The following excerpts from the publication are given.

Soil Analyses Not Needed to Recommend Fertilizers

Tests of soils for individuals are not needed in order to suggest fertilizers which may give good results. The only tests needed are for acidity. Lime should not be applied to soils unless the acidity is less than a pH of 6.0. Unless the soil has been tested and found to

be acid, lime should not be used. There are a few heavy clay soils to which this does not apply.

The many chemical analyses of typical soils from all parts of Texas and the results of field experiments are being utilized to make recommendations for the use of various grades of fertilizers sold in Texas. These recommendations are cooperative, being agreed upon by members of the various divisions of the Experiment Station, the Extension Service, the School of Agriculture and the Agricultural Adjustment Administration.

Fertilizers for Irish Potatoes in Northwest Texas

In a fertilizer test on irrigated land at Substation No. 8, Lubbock, involving different amounts of nitrogen, phosphoric acid and potash, it was found that nitrogen gave larger increases in yields of potatoes than either phosphoric acid or potash. The largest amount of nitrogen used, 48 pounds per acre, made the largest yield. The results indicate that 48 pounds of phosphoric acid and 24 pounds of potash per acre are also needed. The application of 600 pounds per acre of 8-12-4 fertilizer made the largest profit, \$81.00 per acre, and the greatest return per dollar invested in fertilizer was \$7.79.

Rice Fertilizers

Rice fertilizer tests conducted at Substation No. 4 at Beaumont for a number of years show that a fertilizer supplying 20 pounds per acre each of nitrogen and phosphoric acid is a profitable application for rice on the principal soils of the area. Fertilizer drilled in with the seed has increased the yield of rice approximately 15 per cent as compared with broadcast application on top of the soil.

Recent tests on farms at different locations over the region have resulted in an increase in

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the number of farmers that use fertilizers on rice. The general practice is to use a fertilizer carrying more nitrogen than was used in former years. Practically all farmers are now using drills with fertilizer attachments for placing the fertilizer in the row with the seed.

Placement of Fertilizers

Recent work at the Winter Garden Station reveals that the machine placement of fertilizers below the plants increased the yield by 22 per cent as compared with broadcasting the same amount of fertilizer.

Phosphates and Pastures of Eastern Texas

Work conducted at Angleton, Beaumont, Tyler, and the King Ranch near Falfurrias during the last several years has shown definitely that the application of phosphoric acid is necessary for the successful establishment of adapted pasture legumes in the Gulf Coast Prairie and eastern Texas.

These results show that application of phosphate greatly increased the yield and feeding value of the pasture grasses in eastern Texas and all along the Gulf Coast to southern Texas. They indicate that phosphate may be applied to advantage on pastures throughout this vast region. In view of these favorable results farmers and ranchmen in that part of the State are beginning to apply phosphate to their pastures.

Starter Solution for Tomatoes

The use of a starter solution consisting of 8 pounds of a mixture of 2 parts ammo-phos to 1 part nitrate of potash and 50 gallons of water, using $\frac{1}{4}$ pint per plant, was found to increase the yield of tomatoes by 25 per cent at Substation 20, Stephenville. The use of Transplantons with the starter solution increased the early yield only.

Fertilizers and Root Rot of Cotton

In experiments in Washington and Burleson Counties for three years the early maturing

varieties have outyielded the late maturing varieties by a highly significant margin, although the amount of disease in the two groups did not differ significantly. A high nitrogen fertilizer reduced the amount and increased yields by a highly significant margin. A high phosphate fertilizer had almost no effect on the amount of the disease in cotton on the Houston black clay in Washington County, whereas on Crockett clay loam in Burleson County the amount of the disease was increased where phosphoric acid was used. The yield of cotton was increased by the use of phosphate fertilizer only in the latter soil.

Box Car Demurrage Raised

Effective April 1st, the Interstate Commerce Commission raises the demurrage charges on box cars to \$2.20 per day per car for the first two days or fraction thereof after free time, \$5.50 per car for the third day, \$11.00 per car for the fourth day, and \$16.50 per car daily for each succeeding day.

The advance is made on the recommendation of Col. J. Monroe Johnson, Director of the Office of Defense Transportation, to speed up loading and unloading, it is stated, in view of the inadequate box car supply.

Russians will receive from Uncle Sam about 20,000 tons of field crop seeds to use this spring in the Ukraine region.

Cotton, treated by a new method to make it flame-proof and water-repellant, becomes excellent for insulating buildings, cars, trucks, etc., and is considered a promising new use for this crop of which there are now 16,894,000 bales in stock.



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Personnel Changes in Virginia

John R. Hutchison, Director of Virginia Agricultural Extension Service, has been made Executive Assistant to President Julian A. Burruss of Virginia Polytechnic Institute, Blacksburg.

L. B. Dietrick has been designated acting Director to succeed Dr. Hutchison as Director of Agricultural Extension Service. Mr. Dietrick had been a specialist in vegetable gardening.

S. B. Fenne has returned to his old position of pathologist after a leave of two years to work in Brazil.

G. T. Coulter, County Agent in Henrico County, has been appointed to the editorial staff to give special attention to moving pictures and other visual aids in promoting extension work.

Fertilizing for Higher Corn Yields

Dr. E. R. Collins, Extension Agronomist in North Carolina, says in a news release concerning corn fertilization:

"If the corn follows tobacco, use 300 pounds of 6-8-6 or 5-7-5 fertilizer per acre. If the corn is in rotation with small grains and legumes for seed, or where legumes are turned under, apply 300 to 500 pounds of either of these fertilizers. If the corn is in rotation with peanuts or legumes for hay, apply 300 to 500 pounds of 4-8-8 per acre."

Farm Economy Study Authorized by Congress

Under terms of House Resolution 54, an investigation by the House Committee on Agriculture is to be made touching marketing and distribution of farm products, with particular attention given to the spread between prices received by the farmer and those paid by the ultimate consumer.

It is announced that the inquiry will include transactions on futures of commodity exchanges to discover if they might have an effect on prices received by farmers and prices

paid by consumers; also a study of practices in connection with the sale or distribution of insecticides, fungicides and fertilizers to determine if they adversely affect the farmers' interests.

Here and There

Government reports show production of farm machinery for the last six months of 1944 was about 23 per cent behind schedule. Cultivators, for example, totaled 171,000 manufactured as against 273,000 scheduled.

Four hundred special corn demonstrations in North Carolina are to show this year how corn yields may be greatly increased.

"Don't pile bags of fertilizers more than five or six deep and be sure to put them on a dry floor, preferably plank. Straw can be put between the bags to help keep them dry," says the Virginia Agricultural Extension Service in its advice to farmers.

Georgia produced the largest crop of peanuts in 1944 in its history—392,000 tons. Georgia's acre yield of cotton in 1944 was the highest in its history and the application of fertilizers to cotton per acre was 400 pounds, also a record, according to the Georgia Agricultural Extension Service.

"Lime's good, phosphate's good, but the two together, where needed, are worth three times as much as either by itself."

—*Tennessee Extension Service*

A three-ton crop of alfalfa hay removes annually the equivalent of 200 pounds of 20 per cent superphosphate and 300 pounds of muriate of potash.

Cigarettes for U. S. smokers in 1944 were estimated at 220 billion compared to 258 billion in 1943. About 110 billion went to the armed forces and the Red Cross.

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FACTORIES

Alexandria, Va.	Detroit, Mich.	Pensacola, Fla.
Baltimore, Md.	East St. Louis, Ill.	Pierce, Fla.
Buffalo, N. Y.	Greensboro, N. C.	Port Hope, Ont., Can.
Carteret, N. J.	Havana, Cuba	Savannah, Ga.
Cayce, S. C.	Henderson, N. C.	Searsport, Maine
Chambly Canton,	Montgomery, Ala.	South Amboy, N. J.
Quebec, Can.	Norfolk, Va.	Spartanburg, S. C.
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Charleston, S. C.	Havana, Cuba	Norfolk, Va.	Wilmington, N. C.
Cincinnati, Ohio	Henderson, N. C.	No. Weymouth, Mass.	
Cleveland, Ohio	Houlton, Me.	Pensacola, Fla.	

THE PROBLEM OF THE PEAKS

(Continued from page 9)

certainly level things out to some extent. Let us bring in a firm C. It is situated conveniently for supplying some 200,000 square miles around it, say four or five counties. Perhaps not all this agricultural ground plants the same crops at the same periods; some may be late ground, some early. Again some localities will in normal times specialize more in one class of crop than another. If there are not these natural differences in the immediate area of supply, then firm C may have to consider striking out for business in areas farther away so that the demands from its consumers can be staggered.

Nor should farm fertilizers only be considered. The horticultural demand can be brought into the picture, particularly if the firm specializes in fertilizers for later crops like outdoor tomatoes.

Thus, in what is the normal peak period—March and April, say, for many areas—there might have to be a soft-pedaling of sales effort. Only a limited tonnage of potato fertilizer would be booked. But in the less peaked periods—possibly the root-crop period or the January/February period—the sales effort would be much more intense, and the firm would specialize in the production of fertilizers likely to be needed during these periods.

At any rate, it should be possible to obtain steady monthly totals of orders for the January to May period, provided that all concerned in the organization had the courage not to over-book for the "easy" period. If this was coupled with intense effort in other directions to overcome the November and December trough in the demand-graph, the firm C might build up an exceptionally stable business.

Too often specialization is regarded as a method of attracting tonnage in the obvious sense that 500 tons is better than 400 tons; the possibility that several specializations of product might aim at balance of demand is lost sight of. For 500 tons is not necessarily better than 400 tons if the whole 500 has to be handled in one rushed period and with much resultant wastage and friction.

While the permit system operates, it is not practicable for this kind of policy to be attempted, for a permit is lodged and accepted before any sales manager can tell how it will have to be fulfilled. Nevertheless, in normal times it would pay almost any firm to encourage what might be called time-table

salesmanship, to reward a salesman more for an order of 30 tons that can be delivered in a slack period than for 50 tons that can only be sent out in one of the peak periods. Who would not admit that the salesman who brings in 200 tons for June is doing better than the salesman who brings in 300 or even 400 tons for March or April?

This solution or partial solution by sales policy will tend to operate wherever there is close cooperation between sales management and production management, and it is undoubtedly the function of general management to bring this about. In war-time, admittedly, the sales manager has little chance of discriminating in his sales, and at the same time the production department is beset with a multitude of afflictions; but there is room for a good deal of progress in this direction in the post-war period. (It should be said, however, that this section probably applies mainly to those whose interests lie in the compounding of fertilizers.)

There will probably be a good deal of disagreement about the practicability of this policy. It will be regarded by some as a form of "bad business." But no small firm with a limited annual output should too hastily reject its principles. The cost of discriminating salesmanship, the cost of refusing "easy" business, may well be much less than the cost of severely seasonal distribution. Nor need it be bad salesmanship in the sense of withdrawal at the time of crisis. If the policy was put over frankly—in persuasive sales literature—if the cards were attractively shown to the consumer, then it might well provide good publicity of the kind that would attract the right sort of orders.

(d) Partial Advance Storage of Compounds

There can be pre-mixing of a stock N/P_2O_5 balance, this being piled up in bulk during the slacker months. As the peak season

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Agricultural authorities have shown that a lack of Boron in the soil can result in deficiency diseases which seriously impair the yield and quality of crops.

When Boron deficiencies are found, follow the recommendations of local County Agents or State Experiment Stations.

Information and references available on request.

AMERICAN POTASH & CHEMICAL CORPORATION

122 East 42nd ST., NEW YORK CITY

Pioneer Producers of Muriate of Potash in America

See Page 4



approaches, the second mixing with added N, P_2O_5 , or potash can take place. This is probably a more common practice in America than here, where the standard mixture is known as "dry base goods." It overcomes in advance much of the conditioning problem, but it seems to have two disadvantages that must show themselves in costs. Space is required for bulk storage in the factory or near it (and in that case an internal transport cost arises), and to some extent the mixing operation is duplicated. Also, it is a manufacturers' solution rather than a consumers' solution—it is based upon the fact that superphosphate and sulphate of ammonia tend to set.

Now this fact has no relation to plant needs in terms of N/ P_2O_5 ratio; indeed, for different soils and different crops this ratio should be very variable. The compounder who works on a "dry base goods" system inevitably tends to offer a somewhat fixed N/ P_2O_5 ratio in his various compounds, and in doing this he is studying his own problems far more than those of the soil—he is losing sight of the fact that fertilizers must supply nutrients that are balanced according to plant needs and not according to the tendency of certain chemical materials to set when mixed.

Solution by Cooperation Between Producer and Consumer

(a) Psychological and Sentimental

There is not much need to spend many words upon this method. Sentiment in business, except in certain emergencies, is degrading from most points of view. Psychologically, war-time publicity to encourage early acceptances of fertilizers has left little room for similar peace-time publicity. There will undoubtedly be a reaction to this kind of persuasive pressure which will work in an opposite direction. In any case, producers might have to pay for most of this publicity themselves in peace-time, and it may well be a much sounder gamble to spend the money involved in the statement of more individual points of view. Advertisements devoted to this theme will probably be costly floggings of dead horses.

(b) Economic

The post-war farmer is likely to be looking at the question of price more closely. This is an important fact in the argument for solution by differential price methods. It is, of course, difficult to talk in terms of prices unless one knows to what extent prices will be unified by control in the post-war period. Assuming some measure of control, there is a powerful case for an early-delivery rebate system, and the case is more powerful than in war-time when so many other problems than cost of production impinge upon the farmer. Today a few shillings per ton one way or the other matter little, and this atmosphere has killed any value the present early-delivery rebate system might once have had.

But the present schedule of rebates, with its steady monthly fall from July to February does not entirely square with the facts. It has always seemed to the present writer that farmers who take their autumn or winter crop fertilizers just when they want them, do very well in terms of early-delivery rebate; in short, one of the peaks of demand is associated with high rebates. The system is simple and the monthly reduction in rebates is easy to understand; but it does not follow the trend of events. The slack months are not consecutive in the calendar. They are, in most areas, July and August; November, December, and January; and May and June.

The realistic solution is to weight these months with substantial rebates and to weight the peak months with surcharges. Perhaps it is unfriendly to the industry upon which we depend to talk about surcharges; but at any rate the farmer who takes his goods in slack months in peace-time deserves the utmost encouragement. The absence of a rebate in June is indefensible; the existence of a high rebate in October is equally illogical.

The more individual farmers help fertilizer factories to flatten their production problems, the more they should be rewarded. And in this respect—returning to the service which might be provided by merchants in this respect—there is a strong case for additional rebates to be given to these members of the industry where they cooperate at the right times.

(Continued on page 28)

SULPHATE OF AMMONIA

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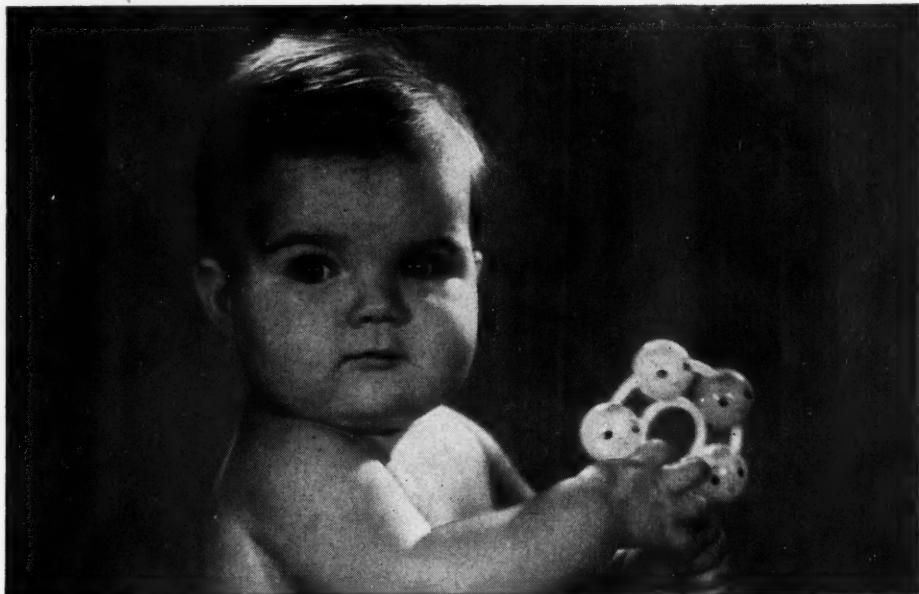
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By what you put aside in War Bonds *today* you can help *make sure* he gets the same chance as other boys, *tomorrow*.

Chances are you're already on the Payroll Savings Plan. Saving as you've never been able to save before. This is fine *provided you keep on saving*.

But take your dollars out of the fight—and you will be hurting yourself, your boy's future, and your country.

Try to buy more bonds than you ever have before. And *hold on to them* . . .

For every three dollars you invest today, you get *four dollars back* when your Bonds come due.

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★

These rebates will add to the cost of the product, but they might still be cheaper than other methods of solution; if some system of surcharges during peak periods was adopted, the cost of the rebates might be balanced. In that case, it would be the January price rather than the March price around which the deductions or additions would operate.

Colonel Pollitt, in his "Britain Can Feed Herself," summarized the capital needs of a self-supporting national agriculture. In his estimates he put down £2,000,000 for fertilizer sheds on farms. It is probably safe to assume that home agriculture will (at most) produce 50 per cent of our food needs after the war, so that this calculation might be written down to £1,000,000. But farmers will need a good deal of economic persuasion to spend £1,000,000 on new storage space for fertilizers even over the next twenty years.

If it were certain (a) that fertilizers would be tending to be in short supply and (b) that a rebate and surcharge price system would operate, both factors over a fixed period of so many years from the end of the war in Europe, many farmers ill-equipped for storage now might consider more actively the provision of extra and suitable space. Does anybody imagine that this step will be taken to any effective extent without economic persuasion?

These, then, are some possible solutions. None of them is likely to achieve success alone. All or several methods must be combined. Competition is healthy enough; but if post-war competition precludes a united effort by the industry to solve the problem of the peaks, fertilizer manufacturers, especially compounders, will lose a unique opportunity of fulfilling their main purpose, which is to supply fertilizers at the lowest reasonable cost.

Apply Needed Lime But Not Too Much

"Get all the lime you need, but need all you use," is a slogan adopted for North Carolina farmers by the agronomy specialists of the Extension Service at State College.

In the "Agronomy Suggestions for February" there are three drawings which show why lime is applied to acid soils, how the proper amount of lime benefits the plant, and how too much lime may cause crop losses.

Where lime is not applied on acid soils, iron and aluminum go into solution and they keep the plant from getting sufficient phosphate, the agronomists explain.

Where the proper amount of lime is added

to a soil, soil acids are neutralized, and calcium and magnesium are supplied the plant. Also, phosphate applied in fertilizers can be fully used by the plant.

Where too much lime is added, diseases may become worse and some plants may die. Also, such plant foods as manganese, boron, and iron cannot be used by the plant.

"Unless you have had a soil test made, do not apply more than one ton of lime per acre," say the agronomists.

Free soils tests may be obtained and growers can get help from the county agents and vocational agricultural teachers in taking soil samples and preparing them for shipment. Lime requirements for the various crops differ and, therefore, the grower should consider the rotation he is following in determining just how much lime to apply to a particular field.

Use of Cotton in Plastics

Use of cotton as a filler for plastics offers opportunities for broadening the market for cotton after the war, E. C. Westbrook, cotton specialist of the University of Georgia, points out.

Cotton fabrics have been extensively used as fillers or reinforcement in the manufacture of plastics requiring relatively high tensile strength, light weight, toughness, flexibility and moldability, for war uses, Mr. Westbrook says. In fact, about 80 per cent of the filler used for laminated plastics is cotton fabric and in 1943, 50,000,000 pounds of cotton textiles were used in plastic laminates alone.

Post-war uses of cotton in plastics, will probably be found in the manufacture of automobiles, aircraft, office equipment, building construction and house furnishings.

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the number of pounds of raw material for a desired per cent. of plant food in a ton of mixed goods—or find what per cent. of a certain plant food in a ton of fertilizer produced by a specific quantity of raw materials.

No mathematical calculations are necessary. You can find the figures in a few seconds with the aid of

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To make clearer its use, answers to such problems as the following can be quickly obtained:

How much sulphate of ammonia, containing 20 per cent. of nitrogen, would be needed to give $4\frac{1}{2}$ per cent. nitrogen in the finished product?

Seven hundred and fifty pounds of tankage, containing 8 per cent. phosphoric acid are being used in a mixture. What per cent. of phosphoric acid will this supply in the finished goods?

Should the Adams' Formula Rule become soiled from handling, it may be readily cleaned with a damp cloth.

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WFA ANNOUNCES PLAN FOR POST-WAR USE OF FERTILIZER AND LIME

(Continued from page 11)

most desirable for soil maintenance. The limited supplies available should be considered as a strategic reserve. The major portion of the potash used in this country should be obtained from foreign sources.

In accepting the committee's report, Secretary Wickard said: "Among farmers and the general public there is a growing realization that more fertilizers and liming materials should be used to conserve and improve soil and promote balanced, ample and profitable farm production.

"There also is a growing realization that present production and distribution capacity for these materials is not sufficient to meet requirements, and that the Nation's supplies of some fertilizers, particularly potash, may be extremely limited."

He recommended study of the committee's report to all persons interested in the adequate and proper postwar use of fertilizers.

Members of the committee are: W. A. Minor, Office of the Secretary; H. R. Tolley, Bureau of Agricultural Economics; F. W. Parker, Agricultural Research Administration; W. G. Finn, Agricultural Adjustment Agency; J. L. Boatman, Extension Service; A. W. Palmer, Office of Foreign Agricultural Relations; A. E. Burns, Office of Materials and Facilities; David Meeker, Office of Surplus Property and Reconversion; S. E. Johnson, Bureau of Agricultural Economics; G. F. Brown, Soil Conservation Service; and K. D. Jacob, Agricultural Research Administration.

The overall view of the fertilizer situation taken by the committee is that present supplies of fertilizers and liming materials fall far short of meeting the level desirable from a national interest standpoint for soil maintenance, efficient farming, and satisfactory farm income. From the standpoint of "desirable levels" of fertilizers and liming materials uses, the committee said that, in

terms of total plant nutrients, fertilizer uses should be more than double the amount consumed in 1944 and almost four times the average consumption of the pre-war years of 1935-39. Use of liming materials should be increased nearly threefold over 1944.

The table below gives the estimated amounts of fertilizers and lime it would pay farmers to use annually under favorable conditions, compared with consumption in 1935-39 and 1944.

The following are set out in the report as the objectives of what should be a national policy for fertilizers and lime:

1. To increase the use of fertilizers and lime up to the amount needed for efficient production, a high national level of nutrition, and the improvement and conservation of soils.

2. To insure a continuous supply of fertilizers and lime adequate to meet all demands.

3. To guard against excessive depletion of limited fertilizer reserves by measures that will assure most effective use of scarce domestic resources including imports of strategic fertilizer materials not found in adequate supply in this country. To determine by exploration the amount and quality of our total reserves of mineral fertilizer sources.

4. To assure availability of fertilizers and liming materials at prices in keeping with efficient production and distribution.

5. To promote efficient low-cost production and distribution of lime and fertilizers by research and other means of developing new or improved methods of manufacture and distribution, including the use of high-analysis materials.

6. To promote research on the use of fertilizers and lime, particularly with respect to requirements of farming systems as related to the soil type and climatic factors and to the improvement and conservation of soils.

7. To increase emphasis on the effective use of fertilizers and lime and good soil management practices through educational programs.

	Use in tons		Desirable use in	
	1935-39	Estimated 1944*	per cent of—	
Nitrogen (N).....	335,000	540,000	1935-39	1944
Phosphoric acid (P ₂ O ₅).....	702,000	1,301,000	328	204
Potash (K ₂ O).....	352,000	711,000	385	208
			483	239
Total plant nutrients.....	1,389,000	2,552,000	396	216
Total lime†.....	5,238,000	14,275,000	783	287

*Provisional estimates made for two states from which reports had not yet been received.

†Calcium carbonate equivalent. Annual needs to provide complete coverage over a period of years of acreage in need of lime, and including quantity needed for maintenance after coverage has been obtained.

BUYERS' GUIDE •

A CLASSIFIED INDEX TO ALL THE ADVERTISERS IN "THE AMERICAN FERTILIZER"



This list contains representative concerns in the Commercial Fertilizer Industry, including fertilizer manufacturers, machinery and equipment manufacturers, dealers in and manufacturers of commercial fertilizer materials and supplies, brokers, chemists, etc. For Alphabetical List of Advertisers, see page 33.



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"The American Fertilizer"

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For an Alphabetical List of all the
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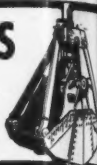
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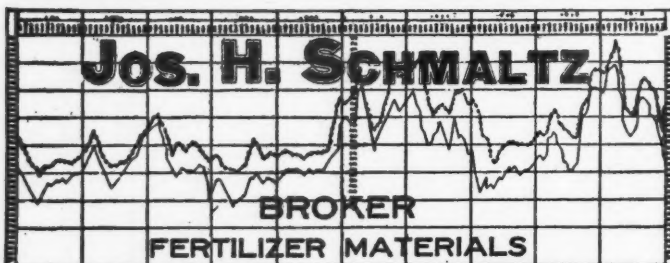
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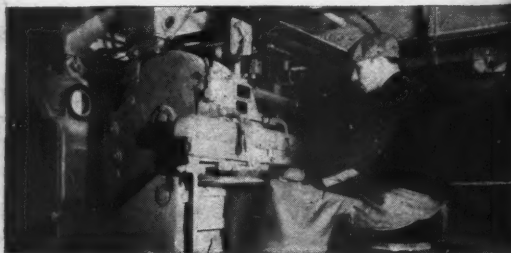
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